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REMARKS

Claims 1-15 are in the application as filed. Claim 7 has been cancelled. Claims 16-17 were added via a previous amendment. New Claim 18 is added herein. The previous amendments had not been entered in the present action as the Examiner asserted that the amendment created new issues. Applicant has also added an additional limitation to the amendment to claim 1 related to particle size. Applicants have filed herewith a request for continued prosecution so as to get the amendments entered and to get the additional arguments submitted herewith considered.

REJECTION UNDER 35 USC 112

Claim 1 was rejected as the amendment tendered with the previous response recited particle size but didn't indicate that the particle size was average. Claim 1 has been amended to properly indicate the average particle size and specifically states "wherein the conductive functional material has an average particle size (D_{50}) of 0.1 to 1.2 microns". Claim 1 has also been amended to recite a maximum particle size and to include a stability of 24 hours. Support for the stability statement is on page 3, line 24-28.

REJECTION UNDER 35 USC 102(b)

Claims 1-2, 4-8, 11-13 and 15 were rejected as anticipated by DE 19846096. This reference is directed to nano-sized materials, i.e. . . . up to 100 nm. Applicant asserts that the above amendment, now including the 24 hour stability, avoids a 35 USC 102 rejection based upon the DE 19846096 reference.

Claims 1-6, 8-9 and 11-17 were rejected under 35 USC 102 (e).over Kodas et al. (US 2003/0175411). As noted in applicants' previous responses, Kodas et al described ink jetting **precursor** compositions of electronic conductor, resistor and dielectic compositions. The precursors are soluble organometallic materials. The precursor solution of the Kodas reference refers to a precursor or mixture of precursors dissolved in a solvent. Kodas et al have also mentioned that nano-sized particles could be mixed with precursor compositions. Applicant's claims are directed to a method of using ink jettable compositions **having large particles and a low viscosity,** at the same time. Applicant's conductive functional materials are not metal precursors. Applicants respectfully direct the Examiner's attention to paragraphs 0078 to 0118 of Kodas et al. In Kodas, the precursor compositions exploit combinations of solvents and precursors that advantageously provide high solubility of

the molecular precursor while still allowing low temperature conversion of the precursor to the conductive phase. Applicant again notes that Kodas et al is not ink jetting the conductive material of the present invention. It is ink jetting a low viscosity precursor composition that is deposited on a substrate and then converted into suitable form, for forming electronic features.

The Examiner has further noted that if the amendment previously filed and now entered had been entered we would have received a 35 USC 102(e) rather than a 103 rejection based on the particle size reported by Hirai that would overlap the present range at one point. Applicant has added a maximum particle size limitation to Claim 1. It is believed that this amendment would, at least, avoid a 102 rejection.

REJECTION UNDER 35 USC 103

Claim 3 is rejected as obvious over DE 19846096, in view of Grant (US 6,555,205) or Kodas et al. US 2003/0175411. Grant and Kodas are apparently cited as modifying the substrate. However, it is clear that those cited references do not produce all limitations of the currently claimed process, as claimed and amended herein. The examiner also points out that Kodas does not claim the specific type of monomer used in the present application.

Claim 10 is rejected under 35 USC 103(a) as unpatentable over Kodas et al. in view of Adkins (US 6,379,444). Kodas has been discussed, above. Adkins is drawn to ink-jet ink and uses specific monomers to enhance curability and does not alone nor with Kodas make the present invention obvious.

Claim 2 is rejected as obvious over Hirai (US 1003/01/46019). Claims 1, 4-6, 11-13 and 15-16 are also rejected over Harai. Applicants again respectfully disagree that their claims are anticipated by Harai. Hirai discloses an ink composition used for forming a conductive pattern, for layering on a substrate, with nano-sized particles (1-100 nm). Applicant has, in the present amendment, restricted the size of its functional material in Claim 1 to a particle size to an average of 0.1 to 1.2 microns (see specification at p. 5) and added a maximum particle size of 5 microns or less. Applicant has also added a stability limit. This size and stability differs from the size of particles in Hirai. No mention is made of stability in Hirai.

Claim 3 is rejected as obvious over Hirai (US 1003/01/46019) in view of either Grant et al (US 6,555,205) or Kodas et al.(US 2003/0175411). We have discussed these three references above. The Examiner notes that there are some differences between the present

invention and this art. We have now added various limitations in the claims to clearly claim these differences.

In view of the discussion above and the amendments made herein applicant maintains that the references do not, either alone or in combination, teach the presently claimed methods.

The Examiner notes that a difference between the present application and Hirai and Loria is a pretreating step. Grant and Kodas are cited as modifying the substrate. It is clear that the cited references do not produce the currently claimed method for the deposition of an ink jet printable composition to a substrate comprising:depositing an ink composition on a substrate by ink jet printing; wherein said composition comprises:(a) conductive functional material; (b) organic polymer comprising polyvinylpyrrolidone; dispersed in (c) dispersion vehicle selected from organic solvent, water, or mixtures thereof; and wherein the viscosity of said composition is between 5 mPa.s to 50 mPa.s at a temperature of 25 to 35°C wherein the conductive functional material has an average particle size (D_{50}) of 0.1 to 1.2 microns and a maximum particle size of 5 um; and wherein said composition maintains stability for 24 hours.

Claim 8 (directed to the embodiment of Claim 1 further comprised of other polymers...) was rejected as unpatentable over Hirai in view of Zhu et al. (US 6,251,175). We have disucssed some of the differences between the present claims and Hirai previously. Zhu claims a jet ink composition comprising an organic solvent, a colorant, and a hydroxyaromatic resin with its hydroxyaromatic units being linked to one another by a linkage other than an alkylene ether linkage, wherein said jet ink composition has a Brookfield viscosity of from about 1.0 cps to about 7.0 cps at 25.degree. C., an electrical resistivity of from about 20 ohm-cm to about 2,000 ohm-cm, and a sonic velocity of from about 1100 meters/second to about 1700 meters/second. Aside from its use as an ink-jet composition, and making used of an acrylic compound, it appears to be unrelated to the composition in Claim 1 and Claim 8 of the present application.

Claim 10 was previously rejected over Tucker in view of Adkins. We had discussed that Tucker is a non-analogous process and the Examiner has noted that it is not being used against the current claims. Tucker does not teach a process of using an electrically conducting functional material as taught herein. . Noguchi and Loria are also not now being used against the instant claims.

Claims 1-2, 4-6, 8, 11-13 and 15-16 were rejected as obvious over DE

19846096. As pointed out by the Examiner, DE 19846096 discloses the use of conductive materiial possessing average particle size of 100 nm while the present application uses average particle size of greater than that.

In view of all the foregoing discussions and the amendments submitted herein allowance of the Claims 1-18 is respectfully requested. Request is also made for RCE.

If anything further is needed to advance the allowance of this application, the Examiner is urged to contact applicant's attorney at the telephone number below.

Respectfully submitted,

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